

REMARKS

Claims 1 - 16 and 25 - 29 which were withdrawn under a restriction requirement have been cancelled without prejudice to place the application in better condition for allowance or for appeal. Claim 21 has been cancelled, as the recitations in this claim have been incorporated into Claim 17, to place the application in better condition for allowance. In addition, in view of the comments of the Examiner in the Office Action, applicants have amended independent Claim 17 to recite "wherein the magnetic field shield is located intermediate the deflection coil and the support, and such that an upper surface of the magnetic field shield is at least approximately parallel to a magnetic equipotential surface of a focusing magnetic field within the immersion lense". This clearly defines the location of the magnetic field shield.

Claim Rejections Under 35 USC § 102

Claims 17 - 24 are rejected under 35 USC § 102(b) as being anticipated by U.S. Patent No. 5,079,428, to Da Lin et al.

Applicants respectfully submit that applicants' Claims 17 - 24 are not anticipated by the Da Lin et al. reference, and that further, there is not even a suggestion of applicants' invention in the Da Lin et al. reference.

The Da Lin et al. reference describes an electron microscope with an asymmetrical immersion lense. (Title) The electron microscope makes use of a fixed electron beam axis, while the specimen to be investigated is moved past the beam optical axis on a movable non-magnetic holder. This is shown at Col. 3, lines 35 - 41 in combination with Figure 1. In an alternative embodiment which is shown in Figure 5, there are scanning coils 50 for scanning the primary

electron beam over specimen 28, but these scanning coils do not produce a variable axis electron beam. The scanning coils 50 direct the very bottom portion of the beam to scan a limited portion of the target, as illustrated in Figure 5, where the axis of the beam remains fixed from the source through the exit at a narrow aperture at the bottom of pole piece 14, which narrow aperture is in line with the central axis of the electron beam. Thus, the Figure 5 embodiment, and all other embodiments of Da Lin et al. are not a variable axis immersion lense electron beam system. In order to scan the entire surface of the specimen/target, “The specimen holder 20 is supported by an x-y-z translator 64 so as to allow both specimen placement near the tip of the conical pole piece 14 and to scan different areas of the specimen 18”. (Col. 7, lines 1 - 10.)

Applicants’ apparatus is a variable axis immersion lens assembly for use with a charged particle beam. The variable axis immersion lense comprises a deflection coil located coaxial to the beam, which deflection coil is used to shift the axis of the charged particle beam as illustrated in Figure 1A of applicants’ disclosure. This is a drastically different apparatus from that described in the Da Lin et al. reference. The present invention pertains to a magnetic field shield for use in a variable axis immersion lens apparatus, where the shield provides an improvement over the prior art.

With respect to a variable axis immersion lens assembly, because of the time varying magnetic field generated by the deflection coil used to vary the axis of the beam, it is necessary to provide a magnetic field shield which limits the deflection magnetic field from radiating into the electrically conductive system components downstream of the shield. Applicants devised a magnetic field shield which limits such radiation, while avoiding affecting the focusing magnetic field. (Specification, Page 3, lines 1 - 4.) There is no teaching or even suggestion of such a

magnetic field shield in the Da Lin et al. reference because the Da Lin et al. apparatus is a fixed
~~axis immersion lense which does not require the kind of magnetic field shield described and~~
claimed by applicants.

In applicants' amended independent Claim 17, applicants have expanded the description of the magnetic field shield to include the recitations which were in Claim 21 and have clarified the location of the shield., as discussed above. The magnetic field shield is the focus of the invention, and is described in detail in applicants' Specification at Page 4, lines 1 - 23, continuing at Page 5, lines 1 - 2; and at Page 7, lines 7 - 16. The general concept is described in applicants' Specification at Page 3, lines 7 - 25.

In light of the above distinctions, applicants respectfully request withdrawal of the
~~rejection of Claims 17 - 24 under 35 USC § 102(b), over Da Lin et al~~

Applicants contend that the claims, amended as requested, are in condition for allowance, or at minimum in better condition for appeal, and the Examiner is respectfully requested to enter the present amendments.

Applicants respectfully request that the Examiner pass the application to allowance.

The Examiner is invited to contact applicants' attorney with any questions or suggestions, at the telephone number provided below.

Respectfully submitted,


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